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Affect, Ideology, and Action:

A Dual-Process Model of Attitude Responses

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**Affect, Ideology, and Action:****A Dual-Process Model of Attitude Responses****Abstract**

Based on prior research and theory, a dual-process model of the accessing and reporting of attitude responses is proposed. An affective response to an object that was previously stored in memory may be accessed in a fast, relatively automatic way under some conditions. Alternatively, a more effortful search of memory for some rule or schema to use in evaluating the object may take place. Two experiments test and confirm several hypotheses derived from this model. (a) Attitude responses that are generated more automatically (indexed by a lower probability of recall or shorter response times) correlate more strongly with direct reports of affect toward the object. (b) Attitude responses that are generated less automatically correlate more strongly with self-reported behaviors toward the object. (c) "Ideological" consistency among attitudes and self-reported political identification is stronger for attitude responses that are generated less automatically.

Implications of the model for attitude measurement, attitude-behavior relations, and attitude change are discussed.

**Affect, Ideology, and Action:****A Dual-Process Model of Attitude Responses**

Attempts to measure attitudes, to predict behavior from them, and to change them have been central to social psychology for at least 50 years. These research efforts have proven fruitful in both the theoretical and practical domains. However, until recently these efforts have proceeded without any explicit theory of how people respond to attitude objects, whether the objects are represented by verbal statements on a questionnaire or are encountered in everyday life. It has generally been assumed that upon perceiving and categorizing the object, the person somehow accesses the relevant attitude (defined as an affective response; Fazio, 1986, p. 214) from memory. The person uses what is retrieved to construct an overt response, placing a checkmark on the appropriate scale point on a questionnaire or behaving in an attitude-consistent way toward an actual object.

However, this common-sense model of attitude response leaves important questions unanswered. How do people respond to novel or complex objects for which they do not have any attitude stored in memory? Is the attitude retrieval process effortful or automatic, fast or slow? How do the properties depend on the origins of the attitude? How do they influence the nature of the attitude response or the strength of the attitude-behavior relationship? What is the source of "ideological" consistency among attitudes toward related objects?

In the last few years, sophisticated theoretical analyses of the attitude retrieval process and related issues have been offered, which

draw on theoretical and methodological advances in the study of social cognition and allow important steps toward answering these questions. This paper will build on these analyses to propose a dual-process model of attitude responding. It will then outline some implications of the new model, and present two experiments testing those implications.

#### Theoretical background

Some of the most relevant work on the retrieval of attitudes is that of Fazio and his associates (Fazio, 1986). Fazio's model assumes that an attitude is represented structurally in memory as an associative link between the object or category and an affective reaction. This link can be used to retrieve the affect when the object is encountered. Like other associations this link can vary in strength. Fazio has shown that a number of independent variables increase attitude strength, including direct behavioral experience with the attitude object (compared to indirect experience), and repeated expression of the attitude (Fazio, Chen, McDonel, & Sherman, 1982).

Fazio's work has also revealed the consequences of strengthening the attitude link. A stronger link shortens the response time (RT) to report the attitude toward the object (Powell & Fazio, 1984). In addition, several elegant experiments have shown that when the link is above a certain threshold strength, attitude retrieval can be automatic, occurring without any instructions to the subject to access or report the attitude, and even when the retrieval impairs performance on the subject's explicit task (Fazio, Sanbonmatsu, Powell, & Kardes, 1986). Finally, Fazio and his associates argue that the automatic retrieval of

an attitude upon encountering the object is responsible for increased attitude-behavior consistency (Fazio et al., 1982), at least for behaviors that are driven by immediate perceptions rather than by calculated plans. Attitude accessibility also increases resistance to attitude change over extended periods of time (Fazio & Williams, 1986).

Related ideas specifically involving political attitudes have been put forward by other theorists. Sears and his associates have developed a theory of "symbolic politics" (Sears, Huddy, & Schaffner, 1986). The underlying idea is that responses to political objects are driven by reactions to potent symbols, linked to affect by early socialization. For example, an object like "busing to integrate whites and blacks" would be responded to on the basis of some combination of the perceiver's affects toward symbols like "busing," "integration," and "blacks." Much evidence supports this general idea (e.g., Sears et al., 1986; Kinder & Sears, 1981).

Abelson, Kinder, Peters, and Fiske (1982) provided related evidence of the impact of affect on evaluations of political candidates. Direct reports of affective responses to candidates predicted political preferences, beyond the effects of partisanship and traditional cognitive measures like judgments of the candidates' honesty, competence, likelihood of solving economic problems, or of appointing good advisors. Affect thus plays an important role in the evaluation of politically significant objects (candidates and policies).

What happens when people are unable to retrieve an affective response to an object? Fiske and Pavelchak (1986) have addressed this

issue, proposing alternative "schematic" and "piecemeal" bases for evaluating an object. Schematic processing resembles the models of Fazio and Sears: the object is categorized using a schema that is linked to an affective response, making the affect available from memory. This process is quick and relatively effortless. When a schema-based affect cannot be retrieved, an alternative piecemeal process takes place. The attributes of the attitude object are individually evaluated and their evaluations averaged (cf. N. H. Anderson, 1981) to give an overall evaluation for the object. Fliske and her co-workers have identified several conditions that push people toward the slower piecemeal process, such as a lack of fit between the object and any available schema.

A dual-process model of attitude retrieval

Building on these prior theories and findings, we propose a dual-process model of attitude retrieval and some of its correlates. The fundamental emphasis is on the importance of knowing what aspects of the person's cognitive structures are accessed in making an attitude response, for in common with current theories in social cognition (Smith, 1984; Wyer & Srull, 1986) we assume that attitude responses are not made by accessing all relevant information from memory.

Affectively based responses. The first part of our model follows closely the assumptions of Fazio, Sears, and Fliske's schema-based affect. Encountering and categorizing an attitude object for which a strong affective association exists may trigger the retrieval of that affect. This process is presumed to be fast and relatively automatic (Fazio, 1986). An affective link that can be quickly retrieved may be

formed by extensive direct experience with an attitude object or by repeated practice expressing the attitude (Powell & Fazio, 1984; Smith & Lerner, 1986). Evaluating an object in this way does not take much cognitive effort, nor must the object reside in working memory for long. For these reasons it is likely that incidental memory for attitude objects processed in this way will be relatively poor. Previous research shows that information that is processed in a relatively automatic fashion is less well remembered than information that receives extensive controlled processing (Fiske & Schneider, 1984).

Cognitively based responses. If an object does not trigger a quick, automatic evaluation, or if a complex object retrieves multiple incompatible affects, we assume that a memory search ensues (assuming that the subject is motivated to express an attitude). The goal of the search is to retrieve some rule or schema that will permit the object to be evaluated in a consistent way. The search is assumed to be effortful and slow, compared to affectively based responses. Because it is nonautomatic, it is also likely to lead to relatively good incidental memory (Fiske & Schneider, 1984).

Our view differs somewhat from Fiske's "piecemeal" mode of responding because we believe that combining separate evaluations of the object's attributes is only one way in which cognitively based responses may be given. For example, consider evaluating a new tax policy. A piecemeal process might examine several consequences or other attributes of the policy and average their desirability to arrive at an overall evaluation. However, we believe that a perceiver may go through such a

process only as a last resort, and may prefer to search for a schema that permits a simpler approach to evaluation. For instance, the person might search for a group identification (such as Republican or conservative) or a general ideological stance (such as opposition to all tax increases) that would permit an overall evaluation of the new policy without considering details of its possible consequences.

**Independence.** We assume that affective and cognitively based reactions to the same object are not always totally in agreement (Hastie & Park, 1986; compare Zajonc, 1980). In fact, the null hypothesis of independence might be an equally plausible initial assumption. People sometimes fall in love with others whom they know on a cognitive level to be highly unsuitable partners, or find themselves unable to stomach actions that they fully believe would be advantageous. Abelson et al. (1982) demonstrated relative independence in evaluations of political figures; reports of affect predicted political choices when entered into a regression after cognitively based trait judgments of the candidates, which could not occur if they were measuring the same thing. Measures of affective reaction contribute different and at least as consequential information about respondents' appraisals of candidates as the "... trait judgment scores" (Abelson et al., 1982, p. 626).

Relations to other attitudes and "ideologies". Either mode of response to an attitude object could lead to consistency across responses to related objects, of the sort that is often referred to as "ideological" (compare Abelson, 1982). An individual may have similar affective responses to all objects of a certain class--perhaps feeling

fear and anger toward all policies that involve tax increases. Then affectively based att. responses to such policies would be consistent. According to Abelson et al. (1982, p. 629) this process could occur for people with strong political identifications, such as strong partisan feelings. Partisanship may organize affect toward political objects, resulting in consistent affectively based responses (for example, negative affect toward Democrats and their programs and positive affect toward Republicans and their programs).

However, affectively based consistency may require special conditions. Developing an automatic affective response to an object seems to require extensive experience with the object in actual behavioral encounters, or repeated expressions of the attitude (Fazio, 1986; Smith & Lerner, 1996). Because of this dependence on a history of specific encounters with an object, the particular set of objects that will trigger affective responses for each individual will be somewhat accidental. It may therefore be more likely that ideological consistency is the product of the more cognitive mode of object evaluation. Faced with a policy that involves a tax increase, the perceiver may find a general principle, schema, or group identification that permits an evaluation of the policy. Evaluations of related objects will be consistent to the extent that identical or related schemas are retrieved to evaluate them. This may in turn depend on the perceiver's expertise and on particular attributes of the objects that cue the retrieval of related schemas, an important point that we cannot go into here (but cf. Sears et al., 1986).

Our prediction is that ideological consistency across attitudes is more typically a product of cognitively than of affectively based evaluations. In combination with Sears' evidence that a 'symbolic politics' affective model of responding is the most common in the general public, this may explain why high levels of political ideology (as measured by constraint or correlation among attitudes) have often been difficult to find (Converse, 1964; Kinder & Sears, 1984).

Relations to behavior. Attitude-behavior relations are of significant interest because of the hope of predicting behavior in real, substantively important situations on the basis of attitude responses, perhaps gathered with a simple questionnaire instrument. Our model sheds light on attitude-behavior relations in two ways. First, it calls attention to the nature of the behavior: specifically, to whether it is primarily driven by automatic, immediate affective responses or by more cognitively based plans or habits. Fazio (1986) has underlined this point, noting that more accessible (i.e., affect-based) attitudes may better predict behavior because they are more likely to be retrieved in the behavior situation, but only if the behavior is governed by situational perceptions rather than by long-standing beliefs and reasoned intentions (Ajzen & Fishbein, 1980). In other words, according to our model, attitude responses may reveal either properties of the perceiver's affective reactions to objects or properties of the perceiver's cognitive belief structures. Which type of attitude response is more closely linked to behavior depends upon whether the behavior itself is driven more by the former or by the latter. The

results of Sears and of Abelson et al. indicate that preferences for political candidates are largely affect-based. Other types of behavior may be more cognitively based and linked to beliefs and intentions.

A second, more speculative issue concerns the role of context in attitude retrieval. Memory retrieval can be highly context sensitive; the specific information that is retrieved will depend on the general situation, the state of the perceiver, and other salient objects in the environment as well as on the attributes of the focal object that serves as the primary retrieval cue. We propose that the automatic retrieval of affective responses to objects may depend on context to a greater extent than the consciously directed retrieval of general, abstract schemas. Related evidence includes the fact that implicit memory measures of the effects of previous experiences on current task performance, depends on details like the modality (visual or auditory) of the prior encounter with the material (Roediger & Blaxton, 1987). Explicit memory (consciously accessible memories tapped by recall or recognition) shows virtually no modality effects. That is, explicit, consciously retrievable information like a schema is more abstract and its retrieval depends less on the details of a particular situation (context, modality) and more on semantic content. This hypothesized difference implies that attitude measurements in a different situation may fail to predict what is accessed in the target situation in which behavior is to be predicted, in the case of affectively based attitudes. We do not pursue this predicted difference in the experiments in this paper but it is of some substantive and theoretical importance.

**Experiment 1**

Experiment 1 investigates attitude-behavior relationships, testing several specific hypotheses suggested by our general model. We investigate the domain of political activity *versus* withdrawal or alienation from politics. We assume that performing political behaviors like registering, voting, joining political organizations, and campaigning for candidates or issues is generally based upon cognitive intentions and plans rather than being determined by situation-specific perceptions and automatic affective reactions. (In contrast, as noted above, the choice among competing candidates may more often be affect-driven. However, this choice is somewhat orthogonal to the current issue, the overall amount of political activity.)

In this experiment, we asked subjects to respond to an eight-item scale measuring political involvement/alienation. We later gave them a surprise recall test for the attitude items, to measure incidental memory. Based on the assumptions outlined above, items that are not recalled are likely to be those that were responded to in a relatively quick, affect-driven manner. Items that are recalled are probably those that required extensive cognitive processing and links to the subject's general schemas for evaluation. We therefore predict (a) the items that are recalled by a particular subject should be more correlated with the amount of political behavior, because they are more likely to reflect properties of abstract social knowledge structures. (b) Nonrecalled items should be less correlated with behavior, and more strongly

correlated with direct reports of affective responses to political activity, measured along the lines suggested by Abelson et al. (1982).

#### Method

This study used a questionnaire, administered in groups to 104 undergraduates who were fulfilling a course requirement of research participation. The questionnaire began with an eight-item political involvement/alienation scale (Olsen, 1969); sample items are "I believe public officials don't care much what people like me think," and "As the national government is now organized and operated, it is well able to deal with all the crucial problems facing the country today." Subjects responded to each item on a 9-point scale labeled from "strongly agree" to "strongly disagree." This scale has been shown to correlate with political activity and involvement (Olsen, 1969), which our subjects reported in the second part of the questionnaire. Subjects answered a series of questions including whether they were registered to vote, had voted in the two most recent elections, identified with a political party, had ever written or spoken to a public official about a political issue or concern, or had ever joined or contributed to a political or lobbying organization. The responses were summed to measure the overall amount of political activity.

Third, the questionnaire asked about affective responses to politics in general, based on the measures of affective responses to candidates used by Abelson et al. (1982). We asked "In the past, how often has thinking about politics made you feel BORED?" Response categories were very often, sometimes, only occasionally, and never.

The question was repeated for three other negative affects (frustrated, angry, and fearful) and five positive affects (excited, interested, proud, happy, and hopeful). We formed scales of total positive and negative affect.

Finally, the questionnaire asked subjects to try to recall the eight attitude items from the initial scale, as close to their exact wording as they could. Subjects had not previously been led to expect a memory test. Recall was scored by a gist criterion. For each subject, we computed a scale of the mean responses to the subset of the eight items that the subject recalled, and a second scale for those items that the subject was not able to recall.

#### Results

We predicted that affect should be more clearly reflected by attitude responses for nonrecalled items, because they were more likely processed on the basis of an immediate retrieval of affect. To test this, we correlated the recalled and nonrecalled item subscales with the direct reports of affect. The nonrecalled items correlated better than the recalled items with positive affect ( $r = .47$  versus  $.20$ ,  $t(95)$  testing the difference of correlated correlation coefficients =  $2.45$ ,  $p < .05$ ) and also for negative affect ( $r = -.26$  versus  $-.10$ ,  $t(95) = 1.30$ ,  $p < .20$ ). We also predicted that the items that were recalled should correlate better with the behavior scale, and the results were in the predicted direction but were nonsignificant ( $r = .25$  versus  $.19$ ,  $t < 1$ ).

For a more powerful test of the relative power of recalled and nonrecalled attitude items in predicting behavior, we used regression

techniques. We compared a model in which a single regression coefficient  $b$  is applied to all eight attitude items responses  $A_i$ :

$$\text{Beh} = a + b \cdot A_1 + b \cdot A_2 + b \cdot A_3 + \dots + b \cdot A_8 + \text{error}$$

with a model in which different coefficients  $b_R$  and  $b_N$  are used for recalled and nonrecalled items respectively:

$$\text{Beh} = a + b_R \cdot A_1 + b_R \cdot A_2 + b_N \cdot A_3 + \dots + b_N \cdot A_8 + \text{error}$$

(assuming items 1, 2, ..., 8 are recalled and 3, ..., 8 are not recalled). These models were estimated by regressing behavior on the sum of responses to all eight items, and on the sum of responses to recalled items and the sum of responses to nonrecalled items, respectively; algebraically this gives the correct specification. The second model has one additional parameter, and the question of interest is whether its  $R^2$  is significantly greater than that of the first model.

Table 1 about here

Table 1 shows that the increment in predictive power from the first to the second model (statistically equivalent to a test of the difference between coefficients  $b_R$  and  $b_N$ ) is significant. Those items that were recalled by each individual subject are better predictors of behavior than those items the subject did not recall. The bottom part of the table shows that this difference is magnified when the measures of positive and negative affect are included in the regression as additional predictors, because (as shown above) they overlap more with the nonrecalled items than with the recalled items.

These results do not appear simply because the better (i.e., more reliable) items happen to be more often recalled. There is a slight tendency for the better-recalled items to be more reliable, but the relationship is somewhat nonlinear; the item that is least often recalled (by under 10% of the subjects) is in the top half of the items in reliability (assessed by the average interitem correlation). More important, this explanation could not account for the fact that the recalled items correlated better with behavior but worse with affect than the nonrecalled items. If reliability differences were responsible there would be a uniform pattern of higher correlations for either recalled or nonrecalled items.

#### Discussion

These findings have both theoretical and practical implications. Theoretically, the predictions of our dual-process model were confirmed. Non-recalled items are likely to be those that were responded to with a quick, automatic retrieval of affect, and such items did correlate more strongly than recalled items with direct reports of affect. On the other hand, since political activities like registering and voting are likely to be cognitively rather than affectively driven, the recalled items should better predict them. This was also observed. Of course, other types of behavior (more determined by affect-laden perceptions of the immediate situation) may show the reverse pattern (Fazio, 1986). There is a hint in our data that one behavioral item, discussing political issues with friends, is of this type. If confirmed, this finding makes sense because this behavior is probably not planned in advance but is a spontaneous response to a situation.

On the practical side, our results show that it may be possible to increase the ability to predict behavior from attitude measures by differentially weighting recalled versus nonrecalled items (which type receives more weight may depend, as noted above, on the type of behavior). The regression models in Table 1 show a significant increment in the attitude-behavior relationship when the subject's ability to recall each attitude item is taken into account. Experiment 1 has several limitations. It was not designed to assess true prediction of behavior from attitudes; the behavioral measure was a self-report of past activities. In addition, recall is only a rough-and-ready measure of the type of processing an attitude item receives. RT measures may be more reliable and valid for this purpose (Fazio et al., 1982). Finally, Experiment 1 explored only a single behavioral domain. Experiment 2 turns to the area of political preferences in order to conceptually replicate the major findings of Experiment 1 and to investigate some issues related to attitude consistency or ideology.

#### Experiment 2

Experiment 2 examines whether the dual-process model, with both RT and recall indicators of the types of processing given to each attitude object, can account for relationships among attitudes toward those objects, directly measured affect, and overall ideological consistency among attitudes. Specifically, we wish to examine these hypotheses: (a) In the relationship between item RT and recall, our model predicts that

longer RTs, which show more cognitively driven and less automatic processing, should be associated with higher probabilities of recall.

(b) Our model also predicts that more affect felt toward an attitude object should be associated with both shorter RT and lower recall. Finally, (c) we can examine the consistency of attitude responses to individual objects with overall measures of political ideology (e.g., self-rated liberalism-conservatism, partisanship). The dual-process model predicts that longer RT's will signal objects that cannot be evaluated on the basis of automatically retrieved affect, and therefore have to be linked to general schemas in memory, including the subject's ideology. So responses to such objects should correlate more with measures of overall ideology.

#### Method

This study was administered on a computer, with 60 undergraduate subjects drawn from an introductory psychology course and tested individually. First, they gave timed attitude responses to each of 27 political figures and objects (policies or programs) that appeared one at a time, in a random order, on the computer screen. They pressed one of two keys to indicate whether they generally liked or disliked each object, under speed and accuracy instructions. Subjects responded first to seven practice objects unrelated to politics, then continued with the actual objects. The objects were pretested to ensure that they were familiar to virtually all subjects. They included three politicians (Ronald Reagan, Jimmy Carter, and Jesse Jackson) and a number of policies or programs described in two- or three-word phrases (e.g., Star

Wars defense, death penalty, gun control, allow school prayer, Equal Rights Amendment). After subjects completed this task they were given a sheet of paper and asked to recall as many of the objects as they could. Subjects then received a questionnaire concerning several aspects of their general political identification and ideology, including self-rated liberalism conservatism and partisanship. Finally, another questionnaire solicited direct reports of affect toward each of the original 27 objects. Each object was followed by a list of six affects (angry, happy, proud, disgusted, afraid, and hopeful) and subjects circled any (possibly more than one) that they had ever felt toward that object. For the purposes of this experiment, we simply counted the number of affects felt toward each object as a measure of how affect-laden the subject's feelings toward the object were.

#### Results

Two aspects of the results test basic assumptions of the dual-process model. First, we examine the relationship between RT and probability of recall for each object. To do this, we need to remove differences among subjects and objects as possible confounds. The objects differ considerably in their typical characteristics. For example, Ronald Reagan elicited reports of much affect, produced one of the shortest mean RTs in the experiment, and was recalled by virtually all subjects. Similarly, subjects tend to differ in their general level of RT and in their ability to recall the objects. These item and subject effects are statistically controlled in a regression based on the 1620 (60 x 27) individual item responses, with recall as the

dependent variable, item and subject as categorical independent variables, and RT as a continuous independent variable. As predicted, the estimated relationship between recall probability and RT is positive and linear (see Figure 1);  $b = .000042$ ,  $E(1,1533) = 5.45$ ,  $P < .05$ .

Figure 1 about here

The relationship between the number of affects checked for each object and the RT to report the attitude toward the object was also estimated, with item and subject effects controlled in a similar analysis. This relationship was negative, as predicted. The relationship had a significant quadratic component, but in the range where the vast majority of RTs fall (between 600 and 4000 msec) it did not depart much from linearity.  $E(1, 1533) = 14.51$  for the linear component and 8.08 for quadratic,  $P < .01$  for each.

We also looked at the relationship of individual item responses to aspects of the subject's overall political ideology. This was to test the prediction that relatively long RTs would signal the more ideologically based responses. To begin with, this hypothesis could be tested only on those items out of the 27 that correlated significantly with political ideology measures across all subjects. Four items (evaluations of Reagan, Carter, Star Wars, and auto import restrictions) correlated significantly with partisanship. Responses to Carter and Reagan that involved relatively longer RTs did relate significantly more strongly to self-rated partisanship. Testing the RT-partisanship

interaction for Reagan,  $E(1, 54) = 7.13$ ,  $P = .01$ ; the regression coefficient predicting like/dislike for Reagan from party identification was .085 for responses involving relatively short RTs (controlling for the subject's overall speed) and .247 for those with long RTs. The positive coefficient means that Reagan was liked more by self-identified

Republicans. For Carter, the interaction was also significant, with  $E(1, 54) = 4.55$ ,  $P = .04$ ; the regression coefficient was .015 for responses with relatively short RTs and -.183 for those with long RTs. Thus, evaluations of these politicians that were produced with short RTs are almost independent of partisanship, but the relationship is substantial for responses that took longer to generate.

This interaction was not significant for the two other objects, nor for any of the four items that correlated with rated liberalism-conservatism, an alternative measure of general ideology. This pattern is understandable. Evaluating party Presidential candidates in terms of one's party identification is one of the most obvious and predictable ways of making attitude responses that are consistent with one's overall politically relevant identities or ideology. This pattern evidently is consistent enough across subjects that we can statistically detect the predicted relationship. Presumably subjects use a similar process to evaluate other objects that do not elicit strong affect, but we are not in a position to know a priori what schemas they use. Self-rated liberalism-conservatism is a crude measure that may not capture the actual cognitive bases of evaluation subjects use for political objects. Few ideological relationships are as consistent across subjects as that between partisanship and evaluation of Presidential candidates.

In several exploratory analyses of the data from Experiment 2, responses to recalled versus nonrecalled objects, or objects with short versus long RTs, did not differentially predict 1984 Presidential preference. As Abelson et al. (1982) have shown, candidate preference is a domain in which affect is at least as important as cognitively based preferences, in contrast to the domain of political activism/withdrawal investigated in Experiment 1. Thus, here the more affectively based (quick, not recalled) responses and the more cognitively based ones predict candidate preference about equally.

#### Discussion

In general, our predictions for Experiment 2 were fulfilled. The dual-process model was supported in a more direct way (with the RT measure) than it could be in Experiment 1. Specifically, we verified three predictions: shorter RTs correspond to those objects that elicited more affect, longer RTs correspond to better recall, and (at least in the clear-cut case of candidate evaluation in relation to partisanship) longer RTs signal attitudes that are more closely linked to general political ideology or identification.

#### General Discussion

The results across these two experiments support the dual-process model of attitude responses. Quick, relatively effortless retrieval of affect based on categorizing an attitude object does occur, and may be indexed by a short RT or a low probability of recalling the object later. This is the process described by Fazio's work on attitude

accessibility, by Sears's symbolic politics model, and by Fiske's notion of schema-triggered affect. For other attitude objects, an immediate affective response cannot be made and the perceiver may try in a more effortful way to base an attitude response on cognitive schemas. This could involve piecemeal processing (Fiske & Pavelchak, 1986), with the object being broken down into its component attributes, but it need not. The object may be evaluated by some general schema, rule, or principle that a memory search can retrieve as relevant. This process may be indexed by a long RTs and a high probability of recalling the object.

Thus, different classes of attitude responses reveal different, potentially independent, aspects of the subject's cognitive structures. Flowing from this fundamental assumption is the implication that the relative ability of the different classes of attitude responses to predict behavior may depend on the nature of the behavior. Behaviors that are generally intentional and rooted in cognitive constructs (beliefs), as opposed to those that are immediate responses to affect-colored perceptions of the current situation, should be predicted by different subsets of attitudes (Fazio, 1986, draws a similar distinction). Experiment 2 also found evidence suggesting that consistency among attitudes, of the sort that has been considered to define political ideology, may more often be a property of cognitively-based rather than affect-based attitude responses. The dual-process model may allow increased understanding of attitude-behavior and attitude-belief links through the application of principles like these. This research also has practical implications. Experiment 1 showed that the overall strength of predictive relationships between

attitudes and behavior could be increased by taking into account a variable that can be easily measured in questionnaires, the subject's recall of a set of attitude items. The dual-process model and the use of recall and RF measures, based in current cognitive theory, may therefore help advance attitude measurement technology in general.

Other practical implications concern attitude change. Different approaches to attitude change are appropriate for attitudes that are based on different types of response. For example, if a subject's reaction to a particular object is affect-driven, changing that person's beliefs about the object may make little difference; our model assumes that beliefs are not even accessed from memory if an affective reaction is quickly retrieved. Changing beliefs will make much more of a difference for a subject who does not have a readily retrievable affect toward the object. Fazio and Williams's recent work on long-term prediction of behavior from attitudes (1986) gives preliminary evidence supporting these hypotheses.

Both theory and practical applications involving attitudes stand to benefit greatly from explicit models of how attitudes are represented in memory and retrieved or constructed when the perceiver is confronted with an object that has to be evaluated. Such models will have implications for all the classic issues regarding political and other attitudes, including the extent and origins of ideological consistency, attitude-behavior relationships, and attitude change. Current approaches to social cognition furnish the theoretical and methodological tools for the construction of such models.

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Table 1  
Prediction of Behavior by Responses to  
Recalled versus Nonrecalled Attitude Items, Experiment 1

1. Relative recall probability and relative number of effects by RT to report attitude. Note: zero point on vertical axis is arbitrary because items and subjects differ.

Coefficient p df R<sup>2</sup>

Single coefficient for all attitude items:

0.068 .002 1 .092

Separate coefficients for recalled and nonrecalled items:

Recalled 0.086 <.001 2 .126

Nonrecalled 0.046 .044

Increment in R<sup>2</sup>:

1 .034

$F(1,101) = 3.95, p < .05$

Models including positive and negative effect as additional predictors:

Single coefficient for all attitude items:

0.063 .010 3 .192

Separate coefficients for recalled and nonrecalled items:

Recalled 0.081 .002 4 .232

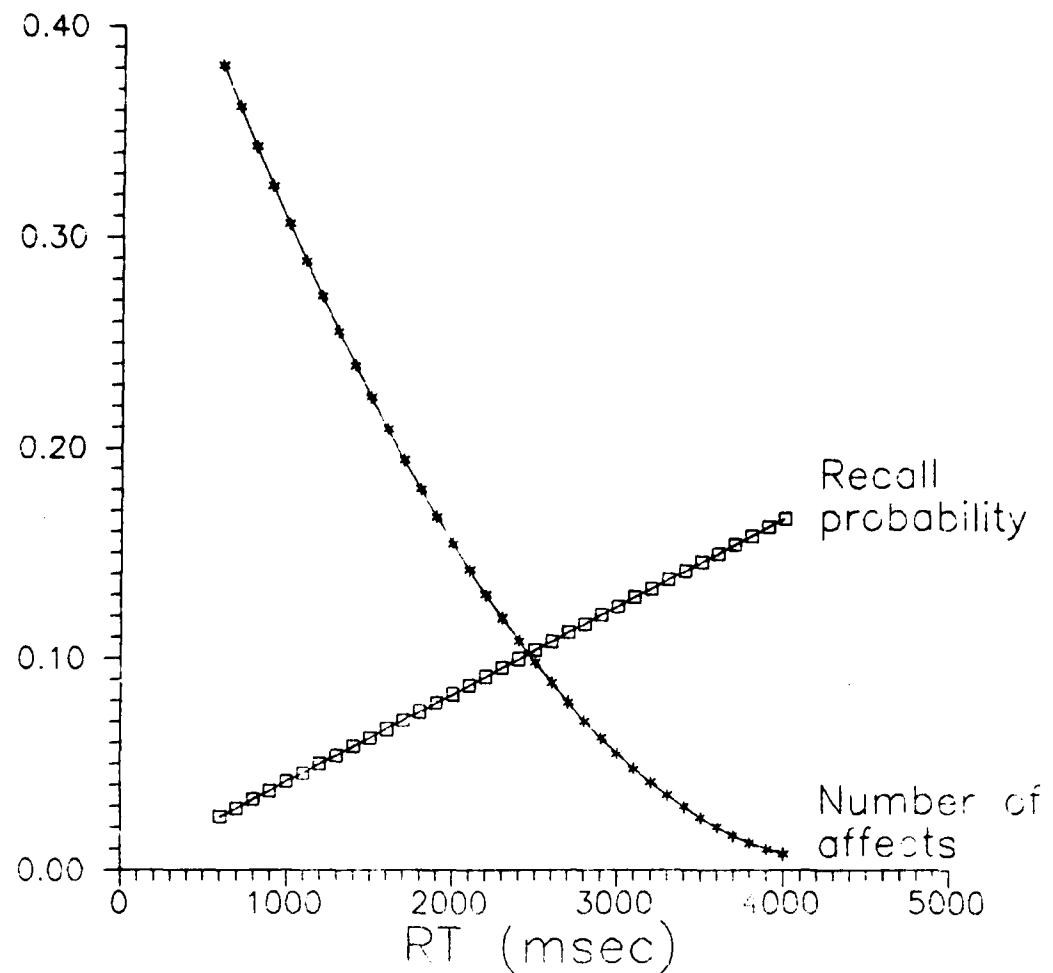
Nonrecalled 0.038 .139

Increment in R<sup>2</sup>:

1 .040

$F(1,99) = 5.12, p < .05$

Note:  $p$  is for test of  $H_0$ : coefficient=0.  $df$  (degrees of freedom for regression = number of predictors) and  $R^2$  pertain to regression equation as a whole.



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